

STIC Database Tracking Number: 259437

To: KAJ OLSEN
Location: REM-8B79
Art Unit: 1795
Friday, May 02, 2008

Case Serial Number: 10/621637

From: KENDRA BANKS
Location: EIC1700
REM-4B28 / REM-4A28
Phone: (571)272-2516

kendra.banks@uspto.gov

Search Notes

Examiner OLSEN:

No Cases Reported

US 5,650,054

Current session 02/05/2008

(C) QUESTEL 1994

QUESTEL ORBIT (TM) 1998

02/05/08 20*50*37

Last connection: 17/04/08 22*12*39

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Query/Command : FILE PLUSPAT

QUESTEL - Time in minutes : 1,30

The cost estimation below is based on Questel's
 standard price list

| | |
|---|----------|
| Estimated cost : | 1.56 USD |
| Cost estimated for the last database search : | 1.56 USD |
| Estimated total session cost : | 1.56 USD |

Selected file: PLUSPAT

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RELOADED 02/2008 Comprehensive Worldwide Patents database

Individual records for each Country or Patent Office

Coverage: 78 patenting authorities; start dates vary from 1800 forward
 Abstracts/Titles in English, French & German. Increased standardization
 of Assignee/Inventor names. Added cited ref's BE, CH, NL, FR, AU, & JPB
 For PlusPat Fact Sheet, Pricing and FAQ, see the Questel website
 Last update of file: 2008/04/25 (YYYY/MM/DD) 2008-17/JUP (last update)

Search statement 1

?

Query/Command : US5650054/PN

** SS 1: Results 1

Search statement 2

?

Query/Command : PRT FULL NONSTOP LEGALALL

1/1 PLUSPAT - ©Questel - image

PN - US5650054 A 19970722 [US5650054]

TI -

(A) Low cost room temperature electrochemical carbon monoxide and toxic gas

- sensor with humidity compensation based on protonic conductive membranes
- PA** - (A) ATWOOD IND INC (US)
- PA0** - Atwood Industries, Inc., Rockford IL [US]
- IN** - (A) SHEN YOUSHEG (US); CONSADORI FRANCO (US); FIELD D GEORGE (US)
- AP** - US52294695 19950901 [1995US-0522946]
- FD** - C.I.P. of US381718 19950131 [1995US-0381718]
Continuation-in-part of: US5573648
- PR** - US52294695 19950901 [1995US-0522946]
US38171895 19950131 [1995US-0381718]
- IC** - (A) G01N-027/407
- ICAA** - G01N-027/407 [2006-01 A - I R M EP]; G01N-027/49 [2006-01 A - I R M EP];
G01N-033/00 [2006-01 A - I R M EP]
- ICCA** - G01N-027/407 [2006 C - I R M EP]; G01N-027/49 [2006 C - I R M EP]; G01N-
033/00 [2006 C - I R M EP]
- EC** - G01N-027/407C2
G01N-027/49B1
G01N-033/00D2D4C
- PCL** - ORIGINAL (O) : 204412000; CROSS-REFERENCE (X) : 204421000
204424000 205781000 205783500 205784000 205786500 205788000
- DT** - Corresponding document
- CT** - US3366559 [US3366559] 205742000
-US4024036 [US4024036] 204427000
-US4025412 [US4025412] 204195000
-US4227984 [US4227984] 204430000
-US4324632 [US4324632] 204195000
-US4474648 [US4474648] 204001000
-US4478704 [US4478704] 204412000
-US4536274 [US4536274] 204433000
-US4664757 [US4664757] 204426000
-US5080775 [US5080775] 204421000
-US5118398 [US5118398] 204153100
-US5126035 [US5126035] 204415000
-US5133857 [US5133857] 204425000
-US5164053 [US5164053] 204153180
-US5173166 [US5173166] 204412000
-US5228974 [US5228974] 204415000
-US5302274 [US5302274] 204412000
-US5344546 [US5344546] 204415000
Sung B. Lee, Anthony Cocco, Darioush Keyvani and G. Jordan Maclay,
Humidity Dependence of Carbon Monoxide Oxidation Rate in a Nafion-Based
Electrochemical Cell, vol. 142, No. 1, Jan. 1995.
- Mahlon S. Wilson, Fernando H. Garzon, Kurt E. Sickafus, and Shimshon
Gottesfeld, Surface Area Loss of Supported Platinum in Polymer Electrolyte
Fuel Cells, vol. 140, No. 10, Oct. 1993.
- STG** - (A) United States patent
- AB** -
A low cost room temperature electrochemical gas sensor with humidity

compensation for sensing CO, alcohol vapors and other toxic analyte gases has a solid protonic conductive membrane with a low bulk ionic resistance. A sensing electrode and a counter electrode, optionally a counter electrode and a reference electrode, which are separated by the membrane, can be made of mixed protonic-electronic conductors, or can be made of a thin electrically conducting film such as platinum. A reservoir of water maintain the solid protonic conductive membrane at constant 100 percent relative humidity to compensate for ambient humidity changes. Embodiments of the inventive sensor also include an electrochemical analyte gas pump to transport the analyte gas away from the counter electrode side of the sensor. Analyte gas pumps for the inventive sensor include dual pumping electrodes situated on opposite sides of the membrane, and include a means for applying a DC power across the membrane to the sensing and counter electrodes. Another embodiment of the inventive sensor has first and second solid protonic conductive membranes, one of which has a sensing electrode and a counter electrode separated by the first membrane, and the other of which has dual pump electrodes situated on opposite sides of the second membrane.

1/1 LGST - CERO

PN - US5650054 A 19970722 [US5650054]

AP - US52294695 19950901 [1995US-0522946]

ACT - 19960730 US/AS02-A
ASSIGNMENT OF ASSIGNOR'S INTEREST
OWNER: ATWOOD INDUSTRIES, INC. 4750 HIAWATHA DRIVE
ROCKFO; EFFECTIVE DATE: 19950908

19960730 US/AS02-A
ASSIGNMENT OF ASSIGNOR'S INTEREST
OWNER: SHEN, YOUSHEG; EFFECTIVE DATE: 19950908

19960730 US/AS02-A
ASSIGNMENT OF ASSIGNOR'S INTEREST
OWNER: CONSADORI, FRANCO; EFFECTIVE DATE: 19950908

19981027 US/CC-A
CERTIFICATE OF CORRECTION

20020402 US/RR-A [+]
REQUEST FOR REEXAMINATION FILED
EFFECTIVE DATE: 20020129

20030707 US/AS-A
ASSIGNMENT
OWNER: ATWOOD MOBILE PRODUCTS, INC. 4750 HIAWATHA
DRIVERO; EFFECTIVE DATE: 20030626
CONFIRMATORY ASSIGNMENT; ASSIGNOR: DURA OPERATING
CORP.; REEL/FRAE: 014242/0122

20031111 US/RF-A

REISSUE APPLICATION FILED
EFFECTIVE DATE: 20030717

20050630 US/AS-A
ASSIGNMENT
OWNER: ANDERSON INDUSTRIES, INC., MICHIGAN; EFFECTIVE DATE:
20000203
MERGER;ASSIGNOR:ATWOOD INDUSTRIES,
INC.;REEL/FRAME:016206/0187

20050630 US/AS-A
ASSIGNMENT
OWNER: DURA OPERATING CORP., MICHIGAN; EFFECTIVE DATE:
20000203
MERGER;ASSIGNOR:ANDERSON INDUSTRIES,
INC.;REEL/FRAME:016206/0235

20050718 US/AS-A
ASSIGNMENT
OWNER: BANK OF AMERICA, N.A., AS COLLATERAL AGENT, WISCON;
EFFECTIVE DATE: 20050713
SECURITY INTEREST;ASSIGNOR:DURA OPERATING
CORP.;REEL/FRAME:016283/0560

20050809 US/AS-A
ASSIGNMENT
OWNER: WILMINGTON TRUST COMPANY, AS COLLATERAL AGENT,
DEL; EFFECTIVE DATE: 20050628
SECURITY AGREEMENT;ASSIGNOR:DURA OPERATING
CORP.;REEL/FRAME:016369/0695

UP - 2006-43

1/11 ~~CRXX~~ - ~~OCLAIMS~~~~RRXX~~

PN - 5,650,054 A 19970722 [US5650054]

PA - Atwood Industries Inc

ACT - 20020129 REEXAMINATION REQUESTED
ISSUE DATE OF O.G.: 20020402
REEXAMINATION REQUEST NUMBER: 90/006209
Figaro Engineering, Osaka, Japan, c/o Arent, Fox, Plotkin & Kahn, Attn: Robert
B. Murray, Washington, DC

20030717 REISSUE REQUESTED
ISSUE DATE OF O.G.: 20031111
REISSUE REQUEST NUMBER: 10/621637
EXAMINATION GROUP RESPONSIBLE FOR REISSUEPROCESS: 1753

Reissue Patent Number:

20050630 REASSIGNED
MERGER

Assignor: ANDERSON INDUSTRIES, INC., DATE SIGNED: 02/03/2000

Assignee: DURA OPERATING CORP., 2791 RESEARCH DRIVE,
ROCHESTER HILLS, MICHIGAN, 48309

Reel 016206/Frame 0235

Contact: RENEE PRESCAN, 200 E. RANDOLPH DRIVE, KIRKLAND &
ELLIS LLP, CHICAGO, IL 60601

20050630 REASSIGNED
MERGER

Assignor: ATWOOD INDUSTRIES, INC., DATE SIGNED: 02/03/2000

Assignee: ANDERSON INDUSTRIES, INC., 2791 RESEARCH DRIVE,
ROCHESTER HILLS, MICHIGAN, 48309

Reel 016206/Frame 0187

Contact: RENEE PRESCAN, 200 E. RANDOLPH DRIVE, KIRKLAND &
ELLIS LLP, CHICAGO, IL 60601

20050718 REASSIGNED
SECURITY INTEREST

Assignor: DURA OPERATING CORP., DATE SIGNED: 07/13/2005

Assignee: BANK OF AMERICA, N.A., AS COLLATERAL AGENT, 20800
SWENSON DRIVE, WAUKESHA, WISCONSIN, 53187

Reel 016283/Frame 0560

Contact: LINDA R. KASTNER, C/O LATHAM & WATKINS, SUITE 5800,
233 S. WACKER DRIVE, CHICAGO, IL 60606

20050809 REASSIGNED
SECURITY AGREEMENT

Assignor: DURA OPERATING CORP., DATE SIGNED: 06/28/2005

Assignee: WILMINGTON TRUST COMPANY, AS COLLATERAL AGENT,
RODNEY SQUARE NORTH, 1100 NORTH MARKET STREET,
WILMINGTON, DELAWARE, 19890

Reel 016369/Frame 0695

Contact: ROBYN RAHBAR, ESQ., SIMPSON THACHER & BARTLETT LLP,
425 LEXINGTON AVENUE, NEW YORK, NY 10017

20070828 REASSIGNED
SECURITY AGREEMENT

Assignor: ATWOOD MOBILE PRODUCTS LLC, DATE SIGNED: 08/27/2007

Assignee: MERRILL LYNCH CAPITAL, A DIVISION OF MERRILL LYNCH
BUSINESS FINANCIAL SERVICES, INC., 222 NORTH LASALLE STREET,
CHICAGO, ILLINOIS, 60601

Reel 019754/Frame 0247

Contact: KATTEN MUCHIN ROSENMAN, 525 WEST MONROE STREET,
CHICAGO, IL 60661

20080208 REASSIGNED
TERMINATION AND RELEASE

Assignor: GOLDMAN SACHS CREDIT PARTNERS, L.P., AS COLLATERAL
AGRENT, DATE SIGNED: 01/30/2008

Assignee: DURA OPERATING CORP., 2791 RESEARCH DRIVE,
ROCHESTER HILLS, MICHIGAN, 48309-3575
UNIVERSAL TOOL & STAMPING COMPANY, INC., 2791 RESEARCH
DRIVE, ROCHESTER HILLS, MICHIGAN, 48309-3575
DURA AUTOMOTIVE SYSTEMS CABLE OPERATIONS, INC., 2791
RESEARCH DRIVE, ROCHESTER HILLS, MICHIGAN, 48309-3575
DURA GLOBAL TECHNOLOGIES, INC., 2791 RESEARCH DRIVE,
ROCHESTER HILLS, MICHIGAN, 48309-3575
ATWOOD MOBILE PRODUCTS, INC., 2791 RESEARCH DRIVE,
ROCHESTER HILLS, MICHIGAN, 48309-3575
DURA AUTOMOTIVE SYSTEMS, INC., 2791 RESEARCH DRIVE,
ROCHESTER HILLS, MICHIGAN, 48309-3575

Reel 020478/Frame 0674

Contact: WATT WANAPHA, ESQ., 919 THIRD AVENUE, 19TH FLOOR,
NEW YORK, NY 10022

Search statement 2

Query/Command : FILE INPADOC

LGST - Time in minutes : 0,01

The cost estimation below is based on Questel's
standard price list

| | |
|---|----------|
| Estimated cost : | 0.01 USD |
| Records displayed and billed : | 1 |
| Estimated cost : | 0.70 USD |
| Cost estimated for the last database search : | 0.71 USD |
| Estimated total session cost : | 2.27 USD |

CRXX - Time in minutes : 0,02

The cost estimation below is based on Questel's
standard price list

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|---|----------|
| Estimated cost : | 0.04 USD |
| Records displayed and billed : | 1 |
| Estimated cost : | 6.30 USD |
| Cost estimated for the last database search : | 6.34 USD |
| Estimated total session cost : | 8.61 USD |

LITA - Time in minutes : 0,00

The cost estimation below is based on Questel's
standard price list

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|--------------------------------|----------|
| Estimated total session cost : | 8.61 USD |
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PLUSPAT - Time in minutes : 0,79

The cost estimation below is based on Questel's
standard price list

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| Estimated cost : | 2.43 USD |
| Records displayed and billed : | 1 |
| Estimated cost : | 1.70 USD |
| Cost estimated for the last database search : | 4.13 USD |
| Estimated total session cost : | 12.74 USD |

Selected file: PLUSPAT

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Coverage: 78 patenting authorities; start dates vary from 1800 forward
Abstracts/Titles in English, French & German. Increased standardization
of Assignee/Inventor names. Added cited ref's BE, CH, NL, TR, AU, & JP

For PlusPat Fact Sheet, Pricing and FAQ, see the Questel website

Last update of file: 2008/04/25 (YYYY/MM/DD) 2008-117/OPP (Last update)

Search statement 2

?

Query/Command : FAM US6800347N

1 Patent Groups

**** SS 2: Results 7**

Search statement 3

?

Query/Command : FAMILSTATE NONSTOP

1/7 PLUSPAT - Questel

PN - AU4971296 A 19960821 [AU9649712]
STG - (A) Open to public inspection
TI - (A) Electrochemical gas sensor
PA - (A) ATWOOD IND INC
IN - (A) SHEN YOUSHEG; CONSADORI FRANCO; FIELD D GEORGE
IC - (A) G01N-027/407
AP - AU4971296 19960130 [1996AU-0049712]
PR - US38171895 19950131 [1995US-0381718]
 WOUS9601441 19960130 [1996WO-US01441]
ICAA - G01N-027/407 [2006-01 A - I R M EP]; G01N-027/49 [2006-01 A - I R M EP];
 G01N-033/00 [2006-01 A - I R M EP]
ICCA - G01N-027/407 [2006 C - I R M EP]; G01N-027/49 [2006 C - I R M EP]; G01N-
 033/00 [2006 C - I R M EP]
EC - G01N-027/407C2
 G01N-027/49B1
 G01N-033/00D2D4C
DT - Corresponding document

2/7 PLUSPAT - Questel

PN - DE69624885 D1 20030102 [DE69624885]
STG - (D1) Granted EP number in bulletin
OTI - (D1) Fühler für Kohlenstoffmonoxyd und toxische Gase mit
 Feuchtigkeitskompensation mit Hilfe von protonenleitenden Membranen und
 dessen Herstellungsverfahren
PA - (D1) WALTER KIDDE PORTABLE EQUIPMEN (US)
IN - (D1) SHEN YOUSHEG (US); FIELD GEORGE D (US); CONSADORI
 FRANCO (US)
IC - (D1) G01N-027/407 G01N-027/417 G01N-027/49
PN2 - DE69624885 T2 20030828 [DE69624885]
STG2 - (T2) Trans. Of EP patent
OTI2 - (T2) Fühler für Kohlenstoffmonoxyd und toxische Gase mit
 Feuchtigkeitskompensation mit Hilfe von protonenleitenden Membranen und
 dessen Herstellungsverfahren

PA2 - (T2) WALTER KIDDE PORTABLE EQUIPMEN (US)
IN2 - (T2) SHEN YOUSHEG (US); FIELD GEORGE D (US); CONSADORI
FRANCO (US)
IC2 - (T2) G01N-027/407 G01N-027/417 G01N-027/49
AP - DE69624885T 19960830 [1996DE-6024885]
PR - US52294695 19950901 [1995US-0522946]
ICAA - G01N-027/407 [2006-01 A - I R M EP]; G01N-027/49 [2006-01 A - I R M EP];
G01N-033/00 [2006-01 A - I R M EP]
ICCA - G01N-027/407 [2006 C - I R M EP]; G01N-027/49 [2006 C - I R M EP]; G01N-
033/00 [2006 C - I R M EP]
EC - G01N-027/407C2
G01N-027/49B1
G01N-033/00D2D4C
DT - Corresponding document
UP - 2003-01

1 / 1 **LEGALI - ©EPO**

PN - DE69624885 D1 20030102 [DE69624885]DE69624885 T2 20030828
[DE69624885]
AP - DE69624885 19960830 [1996DE-6024885]
ACTE - 20031120 DE/8363-A [-]
OPPOSITION AGAINST THE PATENT
UP - 2003-47

3 / 7 **PLUSPAT - ©Questel - image**

PN - EP0762117 A2 19970312 [EP-762117]
STG - (A2) Pub. Of applic. Without search report
TI - (A2) Carbon monoxide and toxic gas sensor with humidity compensation based
on protonic conductive membranes and method of fabrication
OTI - (A2) Fühler für Kohlenstoffmonoxyd und toxische Gase mit
Feuchtigkeitskompensation mit Hilfe von protonenleitenden Membranen und
dessen Herstellungsverfahren
(A2) Capteur de monoxyde de carbone et de gaz toxiques avec compensation de
l'humidité basé sur des membranes conductrices de protons ainsi que son procédé
de fabrication
PA - (A2) ATWOOD IND INC (US)
PA0 - ATWOOD INDUSTRIES INC.; 4750 Hiawatha Drive; Rockford, Illinois 61103-
1298 (US)
IN - (A2) SHEN YOUSHEG (US); FIELD GEORGE D (US); CONSADORI
FRANCO (US)
IC - (A2) G01N-027/49
PN2 - EP0762117 A3 19980610 [EP-762117]
STG2 - (A3) Publi. Of search report

- TI2** - (A3) Carbon monoxide and toxic gas sensor with humidity compensation based on protonic conductive membranes and method of fabrication
- OTI2** - (A3) Fühler für Kohlenstoffmonoxyd und toxische Gase mit Feuchtigkeitskompensation mit Hilfe von protonenleitenden Membranen und dessen Herstellungsverfahren
(A3) Capteur de monoxyde de carbone et de gaz toxiques avec compensation de l'humidité basé sur des membranes conductrices de protons ainsi que son procédé de fabrication
- PA2** - (A3) ATWOOD IND INC (US)
- IN2** - (A3) SHEN YOUSHEG (US); FIELD GEORGE D (US); CONSADORI FRANCO (US)
- IC2** - (A3) G01N-027/49
- PN3** - EP0762117 B1 20021120 [EP-762117]
- STG3** - (B1) Patent
- TI3** - (B1) Carbon monoxide and toxic gas sensor with humidity compensation based on protonic conductive membranes and method of fabrication
- OTI3** - (B1) Fühler für Kohlenstoffmonoxyd und toxische Gase mit Feuchtigkeitskompensation mit Hilfe von protonenleitenden Membranen und dessen Herstellungsverfahren
(B1) Capteur de monoxyde de carbone et de gaz toxiques avec compensation de l'humidité basé sur des membranes conductrices de protons ainsi que son procédé de fabrication
- PA3** - (B1) WALTER KIDDE PORTABLE EQUIPMEN (US)
- IN3** - (B1) SHEN YOUSHEG (US); FIELD GEORGE D (US); CONSADORI FRANCO (US)
- IC3** - (B1) G01N-027/407 G01N-027/417 G01N-027/49
- LA** - ENGLISH (ENG)
- AP** - EP96306317 19960830 [1996EP-0306317]
- PR** - US52294695 19950901 [1995US-0522946]
- ICAA** - G01N-027/407 [2006-01 A - I R M EP]; G01N-027/49 [2006-01 A - I R M EP]; G01N-033/00 [2006-01 A - I R M EP]
- ICCA** - G01N-027/407 [2006 C - I R M EP]; G01N-027/49 [2006 C - I R M EP]; G01N-033/00 [2006 C - I R M EP]
- EC** - G01N-027/407C2
G01N-027/49B1
G01N-033/00D2D4C
- DS** - DE FR GB IT
- DT** - Basic

1 / 1 LEGALI - OEPO

- PN** - EP0762117 A2 19970312 [EP-762117]EP0762117 A3 19980610 [EP-762117]
EP0762117 B1 20021120 [EP-762117]
- AP** - EP96306317 19960830 [1996EP-0306317]
- ACTE** - 19970312 EP/AK-A [+]
- DESIGNATED CONTRACTING STATES:

DE FR GB IT

19980610 EP/AK-A [+]
DESIGNATED CONTRACTING STATES:
DE FR GB IT

19990120 EP/17P-A [+]
REQUEST FOR EXAMINATION FILED
EFFECTIVE DATE: 19981125

19990512 EP/17Q-A [+]
FIRST EXAMINATION REPORT
EFFECTIVE DATE: 19990325

20020703 EP/RAP1-A
APPLICANT REASSIGNMENT (CORRECTION)
OWNER: WALTER KIDDE PORTABLE EQUIPMENT INC.

20021120 EP/AK-A [+]
DESIGNATED CONTRACTING STATES:
DE FR GB IT

20021120 EP/REG-A; GB/FG4D [+]
GB: EUROPEAN PATENT GRANTED
<GB>

20030102 EP/REF-A
CORRESPONDS TO:
(DE 69624885 20030102 [DE69624885])

20030627 EP/ET-A [+]
FR: TRANSLATION FILED

20031015 EP/26-A [-]
OPPOSITION FILED
OPPONENT: FIGARO ENGINEERING INC; EFFECTIVE DATE: 20030813

20060808 EP/PGFP-A [+]
POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
<FR>
PAYMENT DATE: 20060808; PAYMENT YEAR: 11

20060830 EP/PGFP-A [+]
POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
<GB>
PAYMENT DATE: 20060830; PAYMENT YEAR: 11

20060831 EP/PGFP-A [+]
POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
<IT>
PAYMENT DATE: 20060831; PAYMENT YEAR: 11

20070502 EP/27C-A [+]
 TERMINATION OF OPPOSITION PROCEDURE
 EFFECTIVE DATE: 20070227

20070823 EP/PGFP-A [+]
 POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
 <DE>
 PAYMENT DATE: 20070823; PAYMENT YEAR: 12

20080102 EP/PGFP-A [+]
 POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
 <GB>
 PAYMENT DATE: 20070829; PAYMENT YEAR: 12

20080131 EP/PGFP-A [+]
 POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
 <IT>
 PAYMENT DATE: 20070828; PAYMENT YEAR: 12

UP - 2008-09

4/17 PLUSPAT - ©Questel

PN - EP0807249 A1 19971119 [EP-807249]
 STG - (A1) Public. Of applic. With search report
 TI - (A1) ELECTROCHEMICAL GAS SENSOR
 OTI - (A1) ELEKTROCHEMISCHER GASSENSOR
 (A1) CAPTEUR DE GAZ ELECTROCHIMIQUE
 PA - (A1) ATWOOD IND INC (US)
 PA0 - ATWOOD INDUSTRIES INC.; 4750 Hiawatha Drive; Rockford, Illinois 61103-1298 (US)
 IN - (A1) SHEN YOUSHEG (US); CONSADORI FRANCO (US); FIELD D GEORGE (US)
 IC - (A1) G01N-027/407
 PN2 - EP0807249 A4 19980520 [EP-807249]
 STG2 - (A4) Publ. Of suppl. search report
 TI2 - (A4) ELECTROCHEMICAL GAS SENSOR
 OTI2 - (A4) ELEKTROCHEMISCHER GASSENSOR
 (A4) CAPTEUR DE GAZ ELECTROCHIMIQUE
 PA2 - (A4) ATWOOD IND INC (US)
 IN2 - (A4) SHEN YOUSHEG (US); CONSADORI FRANCO (US); FIELD D GEORGE (US)
 IC2 - (A4) G01N-027/407
 LA - ENGLISH (ENG)
 AP - EP96906275 19960130 [1996EP-0906275]
 PR -
 WOUS9601441 19960130 [1996WO-US01441]

US38171895 19950131 [1995US-0381718]
ICAA - G01N-027/407 [2006-01 A - I R M EP]; G01N-027/49 [2006-01 A - I R M EP];
 G01N-033/00 [2006-01 A - I R M EP]
ICCA - G01N-027/407 [2006 C - I R M EP]; G01N-027/49 [2006 C - I R M EP]; G01N-
 033/00 [2006 C - I R M EP]
EC - G01N-027/407C2
 G01N-027/49B1
 G01N-033/00D2D4C
DS - DE FR GB IT
DT - Corresponding document

1/11 **LEGAMI - CERO**

PN - EP0807249 A1 19971119 [EP-807249]EP0807249 A4 19980520 [EP-807249]
AP - EP96906275 19960130 [1996EP-0906275]
ACTE - 19971119 EP/AK-A [+]
 DESIGNATED CONTRACTING STATES:
 DE FR GB IT

19971119 EP/17P-A [+]
 REQUEST FOR EXAMINATION FILED
 EFFECTIVE DATE: 19970804

19980520 EP/AK-A [+]
 DESIGNATED CONTRACTING STATES:
 DE FR GB IT

19980520 EP/A4-A [+]
 SUPPLEMENTARY SEARCH REPORT
 EFFECTIVE DATE: 19980331

19980902 EP/17Q-A [+]
 FIRST EXAMINATION REPORT
 EFFECTIVE DATE: 19980717

20001129 EP/18D-A [-]
 DEEMED TO BE WITHDRAWN
 EFFECTIVE DATE: 20000407

UP - 2003-22

5/17 **PLUSPAT - Questel - image**

PN - US5573648 A 19961112 [US5573648]
STG - (A) United States patent
TI - (A) Gas sensor based on protonic conductive membranes
PA - (A) ATWOOD SYSTEMS AND CONTROLS (US)
PA0 - Atwood Systems and Controls, Salt Lake City UT [US]
IN - (A) SHEN YOUSHEG (US); CONSADORI FRANCO (US); FIELD D

GEORGE (US)
IC - (A) G01N-027/407
AP - US38171895 19950131 [1995US-0381718]
PR - US38171895 19950131 [1995US-0381718]
ICAA - G01N-027/407 [2006-01 A - I R M EP]; G01N-027/49 [2006-01 A - I R M EP];
G01N-033/00 [2006-01 A - I R M EP]
ICCA - G01N-027/407 [2006 C - I R M EP]; G01N-027/49 [2006 C - I R M EP]; G01N-
033/00 [2006 C - I R M EP]
EC - G01N-027/407C2
G01N-027/49B1
G01N-033/00D2D4C
PCL - ORIGINAL (O) : 204412000; CROSS-REFERENCE (X) : 204421000
204424000 204425000 204426000 205781000 205783500 205784000
205786500 205788000
DT - Corresponding document

1/11 LEGALI - ~~OEPO~~

PN - US5573648 A 19961112 [US5573648]
AP - US38171895 19950131 [1995US-0381718]
ACTE -
19950131 US/AS02-A
ASSIGNMENT OF ASSIGNOR'S INTEREST
OWNER: ATWOOD INDUSTRIES, INC. 4750 HIAWATHA DRIVE
ROCKFO; EFFECTIVE DATE: 19950131

19950131 US/AS02-A
ASSIGNMENT OF ASSIGNOR'S INTEREST
OWNER: SHEN, YOUSHEG; EFFECTIVE DATE: 19950131

19950131 US/AS02-A
ASSIGNMENT OF ASSIGNOR'S INTEREST
OWNER: CONSADORI, FRANCO; EFFECTIVE DATE: 19950131

19950131 US/AS02-A
ASSIGNMENT OF ASSIGNOR'S INTEREST
OWNER: FIELD, D. GEORGE; EFFECTIVE DATE: 19950131

20020402 US/RR-A [+]
REQUEST FOR REEXAMINATION FILED
EFFECTIVE DATE: 20020129

20030707 US/AS-A
ASSIGNMENT
OWNER: ATWOOD MOBILE PRODUCTS, INC. 4750 HIAWATHA
DRIVERO; EFFECTIVE DATE: 20030626
CONFIRMATORY ASSIGNMENT; ASSIGNOR: DURA OPERATING
CORP.; REEL/FRAE: 014242/0122

20040706 US/RF-A
REISSUE APPLICATION FILED
EFFECTIVE DATE: 20030717

20050630 US/AS-A
ASSIGNMENT
OWNER: ANDERSON INDUSTRIES, INC., MICHIGAN; EFFECTIVE
DATE: 20000203
MERGER;ASSIGNOR:ATWOOD INDUSTRIES,
INC.;REEL/FRAME:016206/0187

20050630 US/AS-A
ASSIGNMENT
OWNER: DURA OPERATING CORP., MICHIGAN; EFFECTIVE DATE:
20000203
MERGER;ASSIGNOR:ANDERSON INDUSTRIES,
INC.;REEL/FRAME:016206/0235

20050809 US/AS-A
ASSIGNMENT
OWNER: WILMINGTON TRUST COMPANY, AS COLLATERAL AGENT,
DEL; EFFECTIVE DATE: 20050628
SECURITY AGREEMENT;ASSIGNOR:ATWOOD MOBILE PRODUCTS,
INC.;REEL/FRAME:016369/0626

20080101 US/B1-A [+]
REEXAMINATION CERTIFICATE FIRST REEXAMINATION
THE PATENTABILITY OF CLAIMS 2, 17-74 AND 76-78 IS CONFIRMED.
CLAIMS 1, 3, 4, 5, 6 AND 75 ARE CANCELLED.

UP - 2008-03

6 / 7 PLUSPAT - Questel - image

PN - US5650054 A 19970722 [US5650054]
STG - (A) United States patent
TI - (A) Low cost room temperature electrochemical carbon monoxide and toxic gas
sensor with humidity compensation based on protonic conductive membranes
PA - (A) ATWOOD IND INC (US)
PA0 - Atwood Industries, Inc., Rockford IL [US]
IN - (A) SHEN YOUSHEG (US); CONSADORI FRANCO (US); FIELD D
GEORGE (US)
IC - (A) G01N-027/407
AP - US52294695 19950901 [1995US-0522946]
PR - US52294695 19950901 [1995US-0522946]
US38171895 19950131 [1995US-0381718]
ICAA - G01N-027/407 [2006-01 A - I R M EP]; G01N-027/49 [2006-01 A - I R M EP];
G01N-033/00 [2006-01 A - I R M EP]
ICCA - G01N-027/407 [2006 C - I R M EP]; G01N-027/49 [2006 C - I R M EP]; G01N-

033/00 [2006 C - I R M EP]
EC - G01N-027/407C2
G01N-027/49B1
G01N-033/00D2D4C
PCL - ORIGINAL (O) : 204412000; CROSS-REFERENCE (X) : 204421000
204424000 205781000 205783500 205784000 205786500 205788000
DT - Corresponding document

1/1 LEGALI - ©EPO

PN - US5650054 A 19970722 [US5650054]
AP - US52294695 19950901 [1995US-0522946]

ACTE -
19960730 US/AS02-A
ASSIGNMENT OF ASSIGNOR'S INTEREST
OWNER: ATWOOD INDUSTRIES, INC. 4750 HIAWATHA DRIVE
ROCKFO; EFFECTIVE DATE: 19950908

19960730 US/AS02-A
ASSIGNMENT OF ASSIGNOR'S INTEREST
OWNER: SHEN, YOUSHEG; EFFECTIVE DATE: 19950908

19960730 US/AS02-A
ASSIGNMENT OF ASSIGNOR'S INTEREST
OWNER: CONSADORI, FRANCO; EFFECTIVE DATE: 19950908

19981027 US/CC-A
CERTIFICATE OF CORRECTION

20020402 US/RR-A [+]
REQUEST FOR REEXAMINATION FILED
EFFECTIVE DATE: 20020129

20030707 US/AS-A
ASSIGNMENT
OWNER: ATWOOD MOBILE PRODUCTS, INC. 4750 HIAWATHA
DRIVERO; EFFECTIVE DATE: 20030626
CONFIRMATORY ASSIGNMENT;ASSIGNOR:DURA OPERATING
CORP.;REEL/FRAE:014242/0122

20031111 US/RF-A
REISSUE APPLICATION FILED
EFFECTIVE DATE: 20030717

20050630 US/AS-A
ASSIGNMENT
OWNER: ANDERSON INDUSTRIES, INC., MICHIGAN; EFFECTIVE
DATE: 20000203
MERGER;ASSIGNOR:ATWOOD INDUSTRIES,
INC.;REEL/FRAE:016206/0187

20050630 US/AS-A
 ASSIGNMENT
 OWNER: DURA OPERATING CORP., MICHIGAN; EFFECTIVE DATE:
 20000203
 MERGER;ASSIGNOR:ANDERSON INDUSTRIES,
 INC.;REEL/FRAME:016206/0235

20050718 US/AS-A
 ASSIGNMENT
 OWNER: BANK OF AMERICA, N.A., AS COLLATERAL AGENT,
 WISCON; EFFECTIVE DATE: 20050713
 SECURITY INTEREST;ASSIGNOR:DURA OPERATING
 CORP.;REEL/FRAME:016283/0560

20050809 US/AS-A
 ASSIGNMENT
 OWNER: WILMINGTON TRUST COMPANY, AS COLLATERAL AGENT,
 DEL; EFFECTIVE DATE: 20050628
 SECURITY AGREEMENT;ASSIGNOR:DURA OPERATING
 CORP.;REEL/FRAME:016369/0695

UP - 2006-43

7/77 *PLAUSPAT - Questel - image*

PN - WO9624052 A1 19960808 [WO9624052]
STG - (A1) Publ. Of int. Appl. With int. Search rep
TI - (A1) ELECTROCHEMICAL GAS SENSOR
OTI - (A1) CAPTEUR DE GAZ ELECTROCHIMIQUE
PA - (A1) ATWOOD IND INC (US)
PA0 - ATWOOD INDUSTRIES, INC. ; 4750 Hiawatha Drive Rockwood, IL 61103-1298 (US)
IN - (A1) SHEN YOUSHEG; CONSADORI FRANCO; FIELD D GEORGE
IC - (A1) G01N-027/407
LA - ENGLISH (ENG)
AP - WO9601441 19960130 [1996WO-US01441]
PR - US38171895 19950131 [1995US-0381718]
ICAA - G01N-027/407 [2006-01 A - I R M EP]; G01N-027/49 [2006-01 A - I R M EP]; G01N-033/00 [2006-01 A - I R M EP]
ICCA - G01N-027/407 [2006 C - I R M EP]; G01N-027/49 [2006 C - I R M EP]; G01N-033/00 [2006 C - I R M EP]
EC - G01N-027/407C2
 G01N-027/49B1
 G01N-033/00D2D4C
DS - AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG UZ VN AZ BY

KG KZ RU TJ TM

ARIPO patent : KE LS MW SD SZ UG

European patent : AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

OAPI patent : BF BJ CF CG CI CM GA GN ML MR NE SN

DT - Basic

1/1 LEGALI - EPO

PN - WO9624052 A1 19960808 [WO9624052]

AP - WO9601441 19960130 [1996WO-US01441]

ACTE - 19960808 WO/AK [+]

DESIGNATED STATES CITED IN A PUBLISHED APPLICATION WITH SEARCH REPORT

AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE
HU IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX
NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG UZ VN AZ BY
KG KZ RU TJ TM

~~19960808~~ WO/AL [+]

DESIGNATED COUNTRIES FOR REGIONAL PATENTS CITED IN A PUBLISHED APPLICATION WITH SEARCH REPORT

KE LS MW SD SZ UG AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT
SE BF BJ CF CG CI CM GA GN ML MR NE SN

~~19961024~~ WO/COOP

CORRECTED VERSION OF PAMPHLET

PAGE 8, DESCRIPTION, REPLACED BY A NEW PAGE BEARING THE SAME NUMBER; DUE TO LATE TRANSMITTAL BY THERECEIVING OFFICE

~~19961106~~ WO/221

EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION

~~19961107~~ WO/DPPE

REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE

19971204 WO/REG; ~~DE/8642~~ [-]

DE: IMPACT ABOLISHED FOR DE
<DE>

UP - 2003-22

Search statement 3

PATNO IS 5650054

DATE: MAY 2, 2008
LIBRARY: PATENT
FILE: ALL

Your search request is:
PATNO IS 5650054

Number of PATENTS found with your search request through:
LEVEL 1... 1

Your search request has found 1 PATENT through Level 1.
To DISPLAY this PATENT press either the KWIC, FULL, CITE or SEGMS key.
To MODIFY your search request, press the M key (for MODIFY) and then the ENTER key.

For further explanation, press the H key (for HELP) and then the ENTER key.

LEVEL 1 - 1 PATENT

1. 5650054 . July 22, 1997 . Low cost room temperature electrochemical carbon monoxide and toxic gas sensor with humidity compensation based on protonic conductive membranes, Shen, Yousheng - Salt Lake City, Utah, United States (US); Consadori, Franco - Salt Lake City, Utah, United States (US); Field, D. George - Pleasant Grove, Utah, United States (US), 522946 (US), July 30, 1996 - ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., ATWOOD INDUSTRIES, INC. 4750 HIAWATHA DRIVE ROCKFORD, ILLINOIS, 61103, Reel and Frame Number: 008057/00813, Atwood Industries, Inc., Rockford, Illinois, United States (US), United States company or corporation (02) , July 7, 2003 - CONFIRMATORY ASSIGNMENT, ATWOOD MOBILE PRODUCTS, INC. 4750 HIAWATHA DRIVE ROCKFORD, ILLINOIS, 61103, Reel and Frame Number: 014242/00122 June 30, 2005 - MERGER (SEE DOCUMENT FOR DETAILS)., ANDERSON INDUSTRIES, INC. 2791 RESEARCH DRIVE ROCHESTER HILLS, MICHIGAN, 48309, Reel and Frame Number: 016206/0187 June 30, 2005 - MERGER (SEE DOCUMENT FOR DETAILS)., DURA OPERATING CORP. 2791 RESEARCH DRIVE ROCHESTER HILLS, MICHIGAN, 48309, Reel and Frame Number: 016206/0235 July 18, 2005 - SECURITY INTEREST (SEE DOCUMENT FOR DETAILS)., BANK OF AMERICA, N.A., AS COLLATERAL AGENT 20800 SWENSON DRIVE WAUKEGAMA, WISCONSIN, 53187, Reel and Frame Number: 016283/00560 August 9, 2005 - SECURITY AGREEMENT, WILMINGTON TRUST COMPANY, AS COLLATERAL AGENT RODNEY SQUARE NORTH WILMINGTON DELAWARE 19890, Reel and Frame Number: 016369/00695 August 28, 2007 - SECURITY AGREEMENT, MERRILL LYNCH CAPITAL, A DIVISION OF MERRILL LYNCH BUSINESS FINANCIAL SERVICES, INC. 222 NORTH LA SALLE STREET CHICAGO ILLINOIS 60601, Reel and Frame Number: 019754/0247 February 8, 2008 - TERMINATION AND RELEASE, DURA OPERATING CORP. 2791 RESEARCH DRIVE ROCHESTER HILLS MICHIGAN 48309-3535, Reel and Frame Number: 020478/00674

CORE TERMS: sensor, electrode, membrane, conductive, gas, protonic, proton, conductor, sensing, electrical ...

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT

5650054

July 22, 1997

Low cost room temperature electrochemical carbon monoxide
and toxic gas sensor with humidity compensation based on
protonic conductive membranes

REEXAMINATION: January 29, 2002 - Reexamination requested Jan. 29, 2002 by
Figaro Engineering, Osaka, Japan, c/o Arett, Fox, Plotkin & Kahn, Attn: Robert
B. Murray, Washington, DC, Reexamination No. 90/006,209 (O.G. Apr. 29, 2002) Ex.
Gp.: 1743

REISSUE: July 17, 2003 - Reissue Application filed Ex. Gp.: 1753; Re. S.N.
10/621,637 (O.G. November 11, 2003)

CERT-CORRECTION: October 27, 1998 - a Certificate of Correction was issued for
this patent

APPL-NO: 522946 ((08))

FILED-DATE: September 1, 1995

GRANTED-DATE: July 22, 1997

CORE TERMS: sensor, electrode, membrane, conductive, gas, protonic, proton,
conductor, sensing, electrical ...

5650054 OR 5,650,034

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5650054 OR 5,650,054

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For further explanation, press the H key (for HELP) and then the ENTER key.

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